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ABSTRACT

A group of three studies investigated sources of learning difficulty in 18 current or former foreign graduate students with limited English skills whose native language was Chinese, and compared the findings with those for a similar group of 14 native English-speaking graduate students. Students were asked seven questions about their first year of graduate study, asking subjects to recall the mental capacity needed to deal with multiple classroom activities, anxiety level and duration, causes for anxiety, and difficulty in academic learning, and emotional state. The same questions were asked twice for the foreign students, in two situations: sitting in a graduate classroom in their home country, and sitting in a first-year graduate classroom in the United States. There were additional questions for foreign students, concerning their English competence and how they coped with their difficulty. Responses of the two groups were compared, and are summarized here. Both study 1 and study 2 indicated that one of the causes for students' learning difficulties in their second language speaking classroom is the non-automatization of the language used in the classroom, or in other words, the non-automatization of their symbol system for encoding information. This is also a major cause of their anxiety. Contains 3 references. (MSE)

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Students' Learning Difficulties in a Second Language Speaking Classroom

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Native speakers start their language acquisition at birth and practice the language through daily life after learning to speak. When they go to school, their spoken language is already internalized as habits (Bloomfield, 1933). According to Gardner (1983), language is one of the human symbol systems. The two main functions of human symbol systems are to serve as a vehicle for thought and to serve as a tool for communication (Salomon, 1994). With the use of symbols, our knowledge can be passed down generation by generation and we are able to teach our younger generations through schooling. Language develops with schooling, interacts with cognitive development, and integrates with thought. It is difficult for a native speaker to separate their language from thought. Most are not able to recognize the difference between language and thought, because their native language is internalized.

When international students begin their study in a new country where they have to think and communicate in a second language, they may find a separation between language and thought. For most of them, the second language was learned during school years and practiced only in schools. They may speak, write, and pass a test in their second language with effort and consciousness. But it is difficult for them to sit in a classroom where everyone speaks their second language because utilization of a second language as a tool for a new learning is totally different to learning a second language. In the former situation, the target job is to learn new knowledge. They may pick up some new words as a by-product, but to learn the second language is not the goal of this classroom learning. The utilization of a language as communication tool requires the automatization of this language, whereas learning a second language is accompanied by conscious attention.

Sitting in a classroom demands that students mentally work on several jobs simultaneously, such as understanding what the instructor says, retrieving previous knowledge to make sense of the lecture, forming and asking questions, addressing ideas, and note-taking. All these jobs use language as a processing tool. However, for the international students, while their second language is not proceduralized and automatized, they have to work on the language processing first. In order to understand the lecture, they may have to search for meaning of words and connect meanings of words to make sense of the sentences. In order to take notes, they have to search for the correct spelling. These kinds of mental operations would occupy a lot of working memory capacity. It leaves limited room in working memory for new academic learning (such as comprehension, thinking, and problem solving in course content). Therefore, it may cause them learning difficulties and raise their anxiety level as well.

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This research is designed to investigate the learning difficulty and anxiety levels of international students at the first year of their graduate study when their communication tool, English, was not automatized.

METHOD

Two groups of subjects were employed in this investigation. Group 1 included eighteen international graduate students or former international students. Their native language was Chinese. When they enrolled in a graduate program, they all passed the TOEFL and GRE test. However, the fluency of their English varied. Group 2 was composed of fourteen American graduate students. They were all native English speakers. Twelve out of the eighteen international students studied in an area where English was the major communication tool, such as education, linguistics, nursing, etc. The other six international students studied in the area where other symbol systems (such as math and science languages) were utilized in classroom communication. The fourteen American graduate students all studied in the area where English was the major communication tool.

This is a survey study. The survey contained seven main questions about their first year of graduate study. It asked subjects to recall the mental capacity needed to deal with multiple classroom activities, the anxiety level and duration, the causes for anxiety and the difficulty in academic learning, and the emotional state. The same questions were asked twice for the international students in two situations: sitting in a graduate classroom in their home country, and sitting in a first-year graduate classroom in the U.S. There were additional questions for international students about their competence in English at their first year of graduate study and how they coped with their difficulty.

This research is composed of three studies. The first one studied the learning difficulty and anxiety of international students while in their home country and while in the U.S. The second study compared the learning difficulty and anxiety level between international and American graduate students in a first-year graduate classroom where English is the major language. The third is a follow-up study, which studied the differences in mental activities and emotional status in academic learning between American and international students. Non-parametric statistics were applied to these comparisons.

RESULT

Study 1

Three variables in Table 1 were measured by five-point scales, whereas other variables in Table 2 and 3 were measured by frequencies. Both paired comparison t-test and sign-rank tests were used in data analysis for Table 1. Significant differences were found for the three

comparisons: classroom activity level, anxiety level, and anxiety duration, and all favored studying in the home country. Table 2 indicates that the language problem is the most significant cause for the learning difficulties in a second-language-speaking classroom, although the lack of background knowledge may be the other cause. Table 3 points out that the language problem is also the significant cause for anxiety in a second-language-speaking classroom.

Table 1: Comparison of classroom activity level, anxiety level and anxiety duration* between international students' studying in the U.S. and in the home country. (N=18 international students)

VARIABLE	Place	Mean	SD	t **	p	Sign Rank	p
Classroom Activity	Home	1.17	0.51	8.89	0.0001	76.5	0.0001
	US	3.39	1.09				
Anxiety level	Home	1.44	0.78	5.88	0.0001	52.5	0.0001
	US	2.89	0.96				
Anxiety period	Home	1.72	1.07	6.35	0.0001	52.5	0.0001
	US	3.83	0.98				

* The measurement instruments of three variables are all five-point scale. For Classroom Activity, the highest level is 1 and the lowest level is 5.

** Paired comparison t-test.

Table 2: Comparison of causes for problems in the classroom between international students' studying in the U.S. and in the home country

CAUSE	Place	N	Frequency	Percent	Sign Rank	p
Lack academic background	Home	18	0	0	10.5	0.031
	US	18	6	33.3		
Instructor	Home	18	1	5.6	0.5	1
	US	18	2	11.1		
Non-academic stress	Home	18	0	0	0.5	1
	US	18	1	5.6		
Language problem	Home	18	0	0	68	0.0001
	US	18	16	88.9		
Not in good health	Home	18	0	0	.	.
	US	18	0	0		

Table 3: Comparison of causes for anxiety between international students' studying in the U.S. and in the home country

CAUSE	Place	N	Frequency	Percent	Sign Rank	p
Lack academic background	Home	18	0	0	5	0.125
	US	18	5	33.3		
Instructor	Home	18	1	5.6	0	1
	US	18	1	5.6		
Non-academic stress	Home	18	0	0	5	0.125
	US	18	4	22.2		
Language problem	Home	18	0	0	77.8	0.0001
	US	18	18	14		
Not in good health	Home	18	0	0	.	.
	US	18	0	0		

Study 2

This study compared the classroom activity level, anxiety level and anxiety duration between international and American graduate student in their first-year graduate classroom where English was the major language. This study found the same results as that of Study 1. Table 4 shows significant differences on three measures, and all favored native English speakers. Table 5 indicates the language problem is the most significant cause for the learning difficulties of the international students. Table 6 points out that the language problem is also significant cause for anxiety of international student in an English-speaking classroom.

Table 4: Comparison of classroom activity level, anxiety level and anxiety period between native English speakers and international students.

VARIABLE	Subjects	N	Mean	SD	t	p	M-H Chi *	p
Classroom Activity	Native	14	1.64	0.63	5.67	0.0001	15.04	0.0001
	International	18	3.39	1.09				
Anxiety level	Native	14	1.85	0.77	3.27	0.0027	8.15	0.004
	International	18	2.89	0.96				
Anxiety period	Native	14	1.93	1.07	5.22	0.0001	14.76	0.0001
	International	18	3.83	0.98				

* Mantel-Haenszel chi-square statistics.

Table 5: Comparison of causes for classroom learning difficulty between native English speakers and international students

CAUSE	Subjects	N	Freq	%	Chi Sq	p	Fisher's Exact p
Lack academic background	Native	14	3	21.43	0.52	0.457	0.694
	International	18	6	33.33			
Instructor	Native	14	4	28.57	1.58	0.209	0.365
	International	18	2	11.11			
Non-academic stress	Native	14	1	7.14	0.03	0.854	1
	International	18	1	5.56			
Language problem	Native	14	0	0	24.89	0.0001	0.0001
	International	18	16	88.89			
Not in good health	Native	14	2	14.29	2.74	0.098	0.183
	International	18					

Table 6: Comparison of causes for anxiety between native English speakers and international Students

CAUSE	Subjects	N	Freq	%	Chi Sq	p	Fisher's Exact p
Lack academic background	Native	14	5	35.71	0.23	0.631	0.712
	International	18	5	27.78			
Instructor	Native	14	0	0	0.80	0.731	1
	International	18	1	5.56			
Non-academic stress	Native	14	2	14.29	0.33	0.568	0.672
	International	18	4	22.22			
Language problem	Native	14	0	0	19.36	0.0001	0.0001
	International	18	14	77.78			
Not in good health	Native	14	0	0			
	International	18	0	0			

Study 3

Table 7: Comparison of mental activities in academic learning between native English-speakers and international students

MENTAL ACTIVITY	Subjects	N	Freq	%	Chi Sq	p	Fisher's Exact p
Classroom Lecturing							
Following lecture	Native	14	13	92.86	21.13	0.0001	0.0001
	International	18	2	11.11			
Connecting information	Native	14	3	21.43	0.82	0.633	1
	International	18	5	27.78			
Mental translation	Native	14	0	0	4.61	0.032	0.053
	International	18	5	27.78			
Connecting words	Native	14	0	0	6.97	0.008	0.011
	International	18	7	38.89			
Guessing	Native	14	0	0	14.93	0.0001	0.0001
	International	18	12	66.67			
Reading							
Following text	Native	14	13	92.86	15.78	0.0001	0.0001
	International	18	4	22.22			
Connecting information	Native	14	3	21.43	1.85	0.174	0.266
	International	18	8	44.44			
Mental translation	Native	14	0	0	5.74	0.017	0.024
	International	18	6	33.33			
Connecting words	Native	14	0	0	02.58	0.109	0.238
	International	18	3	16.67			

Study 3 compares the differences in mental activities and emotional status in academic learning between American and international students. Table 7 indicates many more international students than American students had difficulty following the lecture in their first-year graduate classroom. The significant differences were found in "Connecting words" and "Guessing". This means while listening to the instructor, many international students mentally connected words with words to make meaning, or guessed, whereas no American students did this. Table 7 also

indicates that the international students, compared with their American peers, had difficulty in following the text while reading. A significant difference was found in Mental Translation.

Table 8 shows the differences in emotional states between American and international first-year graduate students. Significant group differences were found in rating first-year academic learning as "enjoyable" and "interesting". It is understandable. Since the international students faced tremendous language difficulty in their academic learning, the learning could not be interesting and enjoyable at that time.

Table 8: Comparison of the emotional state between native English-speakers and international students in their first-year of graduate school.

EMOTIONAL STATE	Subjects	N	Freq	%	Chi Sq	p	Fisher's Exact p
Confident	Native	14	7	50	4.07	0.044	0.062
	International	18	3	16.67			
Ambitious (Aspiration)	Native	14	5	35.71	4.70	0.03	0.064
	International	18	1	5.56			
Paid full attention	Native	14	5	35.71	1.25	0.265	0.308
	International	18	10	55.56			
Enjoyable	Native	14	9	64.29	12.64	0.0001	0.0006
	International	18	1	5.56			
Interesting	Native	14	9	64.29	7.62	0.006	0.01
	International	18	3	16.67			
Cautious	Native	14	2	14.29	0.03	0.854	1
	International	18	3	16.67			
Worried	Native	14	3	21.43	1.11	0.29	0.446
	International	18	7	38.89			
My thinking stopped	Native	14	0	0	0.80	0.37	1
	International	18	1	5.56			
My mind was overwhelmed	Native	14	0	0	2.58	0.109	0.238
	International	18	3	16.67			

DISCUSSION & CONCLUSION

Both Study 1 and Study 2 indicated that one of the causes for students' learning difficulties in their second language-speaking classroom is the non-automatization of the language used in the classroom, or in other words, the non-automatization of their symbol system for encoding information. Moreover, this is also a major cause of their anxiety. Mentally connecting words and doing translation while listening to the lecture or reading would occupy part of the working memory capacity and reduce attention from listening, or reading. This could result in the students not following the lecture or text, and then having to guess at the meaning of the instruction or content.

Although the subjects of this research are adult international graduate students, the results from this research could help us understand the sources of students' learning difficulties in second language-speaking classrooms for all ages. The results of this research will benefit the university international services in understanding and helping the new international students. It may also promote consideration of the role of the language and the role of the information coding system in school learning and emphasize the importance of automatization of information coding for advanced learning.

This is a pilot study. All subjects are volunteers, and the sample size is small. Moreover, part of the data were collected through recall. Although the design of the research can be strengthened, the high statistical significance levels from the data analyses and the similar results from Study 1 and Study 2 strengthen the findings and enlarge the generalizability of the study.

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